Rats on Anacapa Island

Historically, several introduced species have lived on Anacapa Island including sheep, cats, rabbits and rats. The Black Rat (*Rattus rattus*) was the last non-native mammal to be removed from the island. Rats were introduced to Anacapa Island prior to 1939, either from supplies transported onto the island or from a shipwreck, such as the Winfield Scott, in 1853.

Once ashore, the rats occupied all available habitats on all three islets, from rocky shoreline to the buildings of East Island, to the peak of West Island. Generally, the Black Rats on Anacapa Island:

- Were most abundant in the coastal areas and canyons.
- Were known to breed from April through September.
- Fluctuated between an estimated 750-3000 individuals annually.
- Preyed on native mammals, reptiles, insects, intertidal invertebrates, birds and plants.

Rat Reproductive Cycle

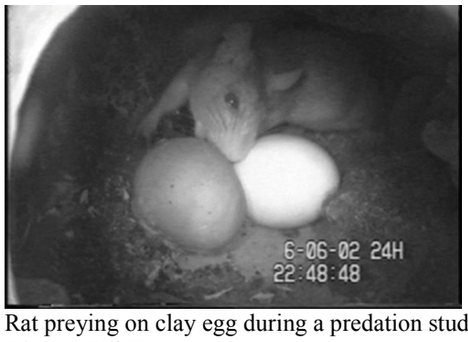
Rats have a unique ability to populate and increase in numbers very rapidly. A single pair of rats introduced to an island can, theoretically, produce over 5,000 descendants in just one year!

- Each female can produce 3-7 litters of between 5-8 pups every year
- Rats start breeding at 3 months of age.
- Rats produce young every 28 days.

Impacts of Rats on Anacapa Island

SEABIRDS

Small ground nesting seabirds such as the Xantus' Murrelet cannot co-exist with rats on Anacapa Island. Rats preyed on murrelet eggs, chicks and even adults. When seabirds are abundant, rats will kill many birds, consuming only the brains and brown fat, leaving the remainder of the carcass to rot. Rats are extremely aggressive and are known to kill seabirds as large as albatross in Hawaii.



Rat preying on clay egg during a predation study. *Photo: Bill Henry*


Western Gull Chick depredated by a rat. Note the characteristic hole in the skull with brain missing. *Photo: Gregg Howald*


Xantus's Murrelet egg depredated by a rat, Anacapa Island. *Photo: Gregg Howald*

DEER MICE

Rats negatively impacted the native deer mouse population, both directly and indirectly. Rats have been observed to prey on mice on Anacapa Island, especially during the fall months when other food resources become scarce. Rats compete with deer mice for food resources, reducing the population of native mice. It is believed that due to a combination of predation and competition, rats were responsible for a 20 year absence of deer mice from East Anacapa Island.


Anacapa Deer Mouse fitted with a radio collar for tracking studies. *Photo: Gregg Howald, ICEG*

Terrestrial Invertebrates

Black rats preyed on a number of terrestrial invertebrates on the Anacapa Islands, with the heaviest predation on Jerusalem crickets.

Intertidal Invertebrates

Black rats preyed on intertidal invertebrates on the Anacapa Islands, and are most abundant along the shoreline of the island. The most abundant prey item was found to be the shore crab. It was estimated that rats took thousands of crabs each year from the intertidal areas on the island. Black rats were known to prey on shore crabs, mussels, periwinkles, limpets, urchins and other species.

Plants

Seeds are an important part of the diet of the rats on Anacapa Island. Most of the acorns of the island oak on West Anacapa Island were eaten by rats. Seeds from other plants are consumed by rats and may have an affect on the distribution and abundance of some species.